

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants : Benyahia NASLI-BAKIR et al.
Serial No. : 09/700,747
Filed : November 20, 2000
For : METHOD OF APPLICATION
Examiner : Fletcher III, William P.
Art Unit : 1792

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Date: June 19, 2009

By: /Julie Forero/

APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

On February 17, 2009, Appellants submitted a Notice of Appeal from the last decision of the Examiner contained in the Final Office Action, dated August 14, 2008, in the above-identified application. The Notice of Appeal is believed to have been received by the United States Patent and Trademark Office on February 19, 2009. Accordingly, the filing of this Appeal Brief on June 19, 2009, with a request for a two month extension of time, is considered timely.

In accordance with 37 C.F.R. §41.37, this Appeal Brief is submitted in support of the appeal of the final rejections of claims 39, 41-46, 56-76, and 78-98. For the reasons set forth below, the final rejections of claims 39, 41-46, 56-76, and 78-98 should be reversed.

1. REAL PARTY IN INTEREST

The real party in interest in this appeal is AKZO NOBEL N.V., the Assignee of the entire right, title, and interest in and to the present invention.

2. RELATED APPEALS AND INTERFERENCES

Previously a Notice of Appeal (on August 22, 2006) and an Appeal Brief (on 2/26/2007 and revised on September 7, 2007) were submitted in the above referenced

application (Appl. No. 09/700,747). However, after the filing of an Appeal Brief but prior to the Examiner's Answer appellants filed a Request for Continued Examination (RCE) in this application thereby withdrawing the application from Appeal and terminating the proceedings on Appeal prior to any substantive review.

There are no other prior or pending appeals, interferences, or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellants or the Assignee, AKZO NOBEL N.V., "which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal."

3. STATUS OF CLAIMS

Claims 1-38, 40, 47-55, and 77 have been canceled. All of the remaining pending claims 39, 41-46, 56-76, and 78-98 stand rejected, which rejections are appealed herein.

Claims 39, 41-45, 56-59, 70-76, 78-82, 84-87, 89-93, 95, and 98 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Andersson (EP 0 207 024 A2) in view of Lehnert (WO 89/05221 A1).

Claims 46, 83, 88, 96, and 97 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Andersson in view of Lehnert and further in view of Perciwall (EP 0 016 740 A1).

Claims 40 and 77 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Andersson in view of Lehnert and further in view of Menger (US 2,015,806).

Claims 60-64 and 66-69 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Andersson in view of Lehnert and Toshio et al. (JP 61-040137).

Claim 65 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Andersson in view of Lehnert and Toshio et al. and further in view of Perciwall.

Claim 94 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Andersson in view of Lehnert and Perciwall.

Claims 70 and 76 stand rejected under nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1, 9, and 18 of U.S. Patent No. 6,734,275 in view of Andersson.

Claim 94 stands rejected under nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1, 9, and 18 of U.S. Patent No. 6,734,275 in view of Perciwall and Andersson.

4. STATUS OF THE AMENDMENTS

No “Response to Final Office Action” under 37 C.F.R. § 1.116 in the present application was submitted to the Patent Office. As such, the claims, as included in the annexed “Claims Index,” reflect the rejected claims as currently pending, the rejections for which are hereby appealed.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed invention relates to a method of applying an amino resin gluing system to a substrate of a gluelam or laminated timber. *Specification*, page 1, lines 8-9. Independent claim 39 relates to such method including the steps of feeding an amino resin component selected from the group consisting of melamine-formaldehyde and melamine-urea-formaldehyde (*Id.* at page 2, lines 16-19) to at least a first orifice, feeding a hardener component to at least a second orifice, and discharging the resin and hardener through their respective orifices in the form of strands or spray onto a substrate. *Id.* at page 2, lines 10-15 and page 6, lines 4-15. The discharged components remain physically isolated from each other until at least one of the components contacts the substrate. *Id.* at page 6, lines 11-15. The hardener is a volatile acid and is either free from filler or includes filler in an amount of less than 20% by weight. *Id.* at page 2, lines 10-15 and page 3, lines 20-26. When the amount of filler in the amino resin adhesive is kept below 20% by weight, as claimed, delamination is greatly reduced. *Id.* at page 7, lines 6-12 (Example 1). Independent claim 98 relates to such separate application method of resin and hardener components of an amino resin gluing system as described above wherein said gluing system is formed by discharging the amino resin and hardener components through said respective first and second orifices in the form of strands onto at least a first surface of a first substrate layer (*Id.* at page 5, lines 14-15 and 29-36), said discharged components remaining physically isolated from each other until at least one of said components contacts said at least first surface (*Id.* at page 6, lines 11-15), forming a joint with a second surface of a second substrate layer, with said gluing system disposed between said first and second substrate layers and thereby producing said gluelam or laminated timber (*Id.* at page 3, line 2).

Independent claims 60, 70, 76, 94, and 96 all relate to such method of separate application of resin and hardener components of an amino resin gluing system (*Specification*, page 1, lines 2-4) onto a substrate of a gluelam or laminated timber (*Id.* at page 1, lines 8-9), in the form of strands, wherein the hardener comprises a volatile acid and is either free from

filler or comprises filler in an amount of less than 20% by weight (*Id.* at page 2, lines 10-15 and page 3, lines 20-26), wherein the amino resin is selected from the group consisting of melamine-formaldehyde and melamine-urea-formaldehyde (*Id.* at page 2, lines 16-19). In independent claim 60 the resin and hardener components are discharged from different hollow members each having a plurality of orifices (*Id.* at page 5, lines 30-32), and the orifices of one said hollow member is either aligned in, or parallel displaced in, a machine direction in relation to the corresponding orifices of the other said hollow member (*Id.* at page 5, lines 34-36 and page 6, lines 9-11). In independent claim 70 the strands of resin and the strands of hardener do not overlap (*Id.* at page 6, lines 11-15). In independent claim 76 the components of the gluing system are applied in the form of strands or by means of spraying, or any combination thereof, in optional order of application (*Id.* at page 4, lines 14-17). In independent claim 94, the hardener is free from filler and the later applied strands of one component substantially overlap the corresponding previously applied strands of the other component (*Id.* at page 6, lines 1-2), and the hardener component is applied on top of the resin component (*Id.* at page 5, lines 7-8), wherein the volatile component of said hardener comprises formic acid in an amount of 10-30% by weight (*Id.* at page 3, line 24 and page 4, line 2). In independent claim 96 the volatile acid is present in an amount of 10-30% by weight (*Id.* at page 3, line 24) and the resin component is applied directly onto the substrate in the form of strands and the hardener component is applied on top of the resin component in the form of strands, in a manner which protects the substrate from direct contact with the volatile acid at time of application of the hardener component (*Id.* at page 4, line 34 to page 5, line 2 and lines 7-13).

Independent claim 87 relates to a hardener composition for use in such methods according to the invention. *Specification*, page 2, lines 34-35.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

a. Whether claims 39, 41-45, 56-59, 70-76, 78-82, 84-87, 89-93, 95, and 98 are patentable under 35 U.S.C. §103(a) over Andersson in view of Lehnert.

b. Whether claims 46, 83, 88, 96, and 97 are patentable under 35 U.S.C. §103(a) over Andersson in view of Lehnert, and further in view of Perciwall.

c. Whether the rejections of claims 40 and 77 as unpatentable under 35 U.S.C. §103(a) over Andersson in view of Lehnert, and further in view of Menger is proper.

d. Whether claims 60-64 and 66-69 are patentable under 35 U.S.C. §103(a) over Andersson in view of Lehnert and Toshio et al.

e. Whether claim 65 is patentable under 35 U.S.C. §103(a) over Andersson in view of Lehnert and Toshio et al., and further in view of Perciwall.

f. Whether claim 94 is patentable under 35 U.S.C. §103(a) over Andersson in view of Lehnert and Perciwall.

g. Whether claims 70 and 76 are patentable under the doctrine of nonstatutory obviousness-type double patenting over claims 1, 9, and 18 of U.S. patent No. 6,734,275 (“the ‘275 patent”) in view of Andersson.

h. Whether claim 94 is patentable under the doctrine of nonstatutory obviousness-type double patenting over claims 1, 9, and 18 of U.S. patent No. 6,734,275 (“the ‘275 patent”) in view of Perciwall and Andersson.

7. ARGUMENT

A. **Rejection of Claims 39, 41-45, 56-59, 70-76, 78-82, 84-87, 89-93, and 95 under 35 U.S.C. § 103(a)**

Claims 39, 41-45, 56-59, 70-76, 78-82, 84-87, 89-93, and 95 stand rejected under 35 U.S.C. § 103 (a) as allegedly being unpatentable over Andersson (EP 0 207 024 A2) in view of Lehnert (WO 89/05221 A1). Appellants respectfully submit that the Final Office Action fails to properly provide a motivation to combine the cited references to the skilled artisan to arrive at the claimed invention. The Final Office Actions maintains that Andersson teaches applying a two component adhesive system of a phenol resin and a hardener separately and that Lehnert teaches that phenol resins and amino resins are equivalent and therefore the skilled artisan would be motivated to combine the cited references arriving at the claimed invention. Further, this obviousness rejection is improper for failing to provide a showing of *prima facie* obviousness.

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q. 2d 1955, 1956 (Fed. Cir. 1993) (Citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992)). Only if that burden is met, does the burden of coming forward with evidence or argument shift to the applicant. *Id.* If the examiner fails to establish a *prima facie* case, the rejection is improper and will be overturned. *Id.*, (Citing *In re Fine*, 37 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988)). To establish a *prima facie* case of

obviousness, at least three criteria must be satisfied, as set forth in M.P.E.P. § 2143. First, there must be a reason to combine and/or modify the teachings of the cited prior art references. *KSR International Co. v. Teleflex Inc.*, 550 U.S. ____ (2007), 2007 WL 1237837 at 12; *see also In re Fine*, 37 F.2d at 1074; *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992). Second, there must be a reasonable expectation of success without resort to hindsight. *In re Merck & Co.*, 800 F.2d 1091, 1097, 231 U.S.P.Q. 375 (Fed. Cir 1986); *In re Dow Chemical Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988). Third, the prior art references, when combined, must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 985 (C.C.P.A. 1974). In addition, the Court of Appeals for the Federal Circuit has found that a proposed modification to the teaching of a reference is inappropriate for an obviousness inquiry when the modification would render the prior art reference inoperable for its intended purpose. *In re Fritch*, at 1266 n.12 (Citing *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed.Cir. 1984)); M.P.E.P. § 2143.01(V).

In a recent decision, the United States Supreme Court reiterated the standard for a holding of obviousness, as set forth in *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 86 S.Ct. 684. The Court held

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.” *KSR International Co. v. Teleflex Inc.*, 550 U.S. ____ (2007), 2007 WL 1237837 at 6 (citing *Graham*, 383, U.S. 17-18, 86 S.Ct. 684).

The court further stated “*Graham* set forth a broad inquiry and invited courts, where appropriate, to look at any secondary considerations that would prove instructive.” *Id.* at 12. However, “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* To be unobvious, an “improvement [must be] more than the predictable use of prior art elements according to their established functions. *Id.* at 13. The fact that the elements of an invention work together “in an unexpected and fruitful manner” supports the conclusion that an invention is not obvious to one of ordinary skill in the art. *Id.* at 12.

Thus, in order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), the prior art must teach or suggest each element of the claim. To establish a *prima facie* case of

obviousness, the Examiner must show, *inter alia*, that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references and that, when so modified or combined, the prior art teaches or suggests all of the claim limitations. See M.P.E.P. §2143. Moreover, modification of the teachings of such prior art teachings in view of a secondary reference is inappropriate to establish obviousness when such modification would render the teachings of the prior art reference inoperable for its intended purpose. Appellants respectfully submit that a *prima facie* case of obviousness has not been established over Andersson in view of Lehnert in regard to the currently pending claims.

With respect to the obviousness rejections the Final Office Action mailed August 14, 2008, refers the Office Action mailed September 13, 2005 which refers to the reasoning as set forth in the Office Action mailed January 14, 2005, wherein on page 7, the primary reference of Andersson is cited for teaching:

a method of applying a two-component gluing system to a substrate in which the resin component and the hardener component are separately applied to the substrate in the form of separate, parallel strands [abstract]. The components are applied through a nozzle (i.e., orifice) [p.6, ll. 9-17]. The two components do not contact each other until the substrate surfaces are joined together [p. 6, ll. 15-17].... Although Andersson teaches application of the components from a nozzle, the reference does not specify whether it is the same nozzle or two separate, discrete nozzles. Both Perciwall and Andersson teach that pre-curing is undesirable because it necessitates frequent cleaning of the application apparatus [Perciwall: p. 1, ll. 9-21 and Anderson: p. 1]. Based on these teachings, it would have been obvious to one of ordinary skill in the art to apply each component from its own, individual, dedicated nozzle, so as to avoid fouling of the nozzle that would require cleaning. . . . [Andersson] does not teach that the gluing system is an amino resin gluing system or feeding the amino resin and hardener components to at least first and second orifices, respectively.

The January 14, 2005 Office Action goes on to say on page 11, as a justification for combining Andersson with Lehnert:

The gluing system of Andersson is a formaldehyde-based adhesive, preferably resorcinol-formaldehyde or resorcinol-phenol formaldehyde [p. 2, ll. 5-11]. Lehnert teaches the equivalence of phenol and amino resins as conventional two-component adhesives in the art of joining wooden surfaces to form laminates, including condensation products of formaldehyde and urea and/or melamine [p. 1, ll. 28-31 and p. 3, l. 37- p. 4, l. 9].

This basis for combining Andersson and Lehnert can only be made in hindsight, which is impermissible, as set forth below.

Andersson relates to a method of gluing a laminate using curable adhesives whereby resin and hardener are applied separately to the joint area (e.g., laminate surface), preferably in the form of separate parallel strands. See, Abstract. The object of the Andersson invention is set forth on page 2, lines 5-11.

The object of the present invention is to solve the problems of bleeding from glue joints, glued for example with the [sic] in the production of laminated wood conventionally used formaldehyde based adhesives, preferably resorcinol-formaldehyde adhesives or resorcinol phenol formaldehyde adhesives, by using an adhesive wherein the resin component has a limited water dilutability.

Thus, the problem addressed by Andersson is unwanted bleeding of adhesive from the joint areas. This can occur, for example, if the laminate is used in an outdoor environment exposed to rain and the glue joints become wet. The reference explains the mechanism behind this phenomenon on page 1, line 30 *et seq.*

Briefly, the use of separate application of resin and hardener, while advantageous in many respects, has the disadvantage that the components may not be completely mixed. This is because mixing necessarily occurs only on the laminate surface after the separate adhesive components have been applied. If the components are not distributed evenly on the surface, then mixing is incomplete, resulting in unreacted liquid component within the glue joint. If the laminate becomes wet, the liquid resin will dissolve in the water and bleed out, causing discoloration.

The Andersson reference notes that this problem can be solved by employing an adhesive resin with "low water dilutability." Such a resin would not bleed out when the laminate becomes wet because of lower water solubility. In discussing prior art attempts to lower water dilutability, Andersson mentions low pH at page two, lines 16-20.

The water dilutability for the mentioned resin components can be lowered by lowering the pH of the resin to below 7.5 and suitability to a pH of 7. However, the resin will hereby get a low reactivity and this is less desirable in certain fields of use.

In the very next paragraph, the Andersson reference distinguishes its teaching from the prior art use of lowered pH.

Improved results are achieved if the resin condensation, by means of a suitable selection of catalyst and other reaction conditions, is carried out in such a manner that a high content of methylene bridges and few free

methyol groups are obtained. This resin has a low water dilutability, a high pH value and also high reactivity

The teaching of the Andersson reference can thus be summarized as follows.

- 1) Separate application of phenol resin and hardener can cause bleeding due to inadequate mixing.
- 2) The bleeding problem can be addressed by reducing water dilutability.
- 3) Water dilutability can be reduced by lowering the pH of the resin to below 7.5, but this is inadequate because reactivity is decreased.
- 4) Water dilutability can be reduced without lowering pH by suitable control of the reaction conditions of the phenol condensation reaction conditions.

The following conclusions can be drawn from the teaching of the Andersson reference.

- 1) Andersson is directed generally to the use of phenolic resins, and makes no mention of amino resins.
- 2) Andersson is directed specifically to particular condensation reaction conditions for phenolic resins in order to lower water dilutability.
- 3) Andersson specifically teaches away from the use of acidic conditions as a means for lowering water dilutability of phenolic resins.

Lehnert teaches a method for producing wood products such as plywood, and is particularly directed to an improved cold pressing technique for pre-pressing a package of veneer. The improvement is a reduction in formaldehyde emissions by lowering the ratio of formaldehyde to resin in the adhesive composition. Normally, a lower ratio cannot be used because it reduces cold tack, but in Lehnert, this is compensated for by the application of a secondary hardener along the edges of the veneer. The secondary hardener reacts quickly with the resin and holds the veneer together, eliminating the need for cold tack in the primary adhesive composition. The reference mentions that both phenol and amino resins can be used in the manufacture of plywood. See page 1, lines 28-31. The teaching of using a secondary hardener is applicable to “conventional” formaldehyde based, curable adhesives, including both phenol and amino resin adhesives. See page 3, line 37 to page 4, line 7.

The Examiner provides no rationale for substituting an amino resin, as in Lehnert, for the phenolic resin in Andersson. His only basis for such a substitution is the bare assertion that the resins in Lehnert are equivalent. However, a disclosure relating to conventional resins does not mean that these are equivalent resins.

While Lehnert is being cited for establishing the “equivalence” of phenol and amino resins, *nowhere in the Lehnert reference is such an equivalence set forth*. Lehnert states merely that both phenol and amino resins are *conventional*. To argue that “conventional” means “equivalent” strains the ordinary meaning of these words. Conventional in the present context means (from worldwebonline.com, an internet dictionary):

- 1) Following accepted customs and proprieties.. .
- 6) In accord with or being a tradition or practice accepted from the past...

The term equivalent, from the same source, is defined as:

- 1) A person or thing equal to another in value or measure or force or effect or significance etc
- 2) Being essentially equal to something....

Thus, phenol and amino resins may be "conventional" resins used in adhesives, and their use may be "in accord with or being a tradition or practice accepted from the past." They are not, however, "equal... in value or measure or force or significance..." The Lehnert reference itself refutes such an equivalence by establishing that phenol and amino resin systems are fundamentally *different* despite their both being conventional. On page 4, lines 21-28, Lehnert states:

When the adhesive is an amino resin the hardener can for example be an inorganic or organic acid... When the adhesive is a phenol resin the edges of the veneer layers can be coated with a basic compound.

If phenol and amino resins were "equivalent" or "essentially equal," they would not employ totally different chemistries, requiring hardeners with diametrically opposing properties, acidic vs. basic. Thus Lehnert teaches that amino and phenolic resin adhesive systems are different, not equivalent, and use different hardeners. There is no teaching or suggestion in Lehnert that an amino resin could be substituted for the resorcinol or resorcinol-phenol resin in Andersson, or that a volatile acid hardener could also be substituted.

Apart from any teaching in Lehnert of equivalency, replacing the phenolic resin of Andersson with an amino resin would render the Andersson disclosure totally meaningless. As noted above, Andersson is directed to specific conditions for producing a condensation reaction of resorcinol-formaldehyde adhesives or resorcinol-phenol-formaldehyde adhesives. The resulting adhesive has a pH well above neutral, and indeed maintaining a high pH is one of the goals of Andersson. By substituting an amino resin for the resorcinol-based resin in Andersson, the entire teaching of specific reaction conditions in the Andersson reference must be ignored, since they are specific to resorcinol and cannot be applied to amino resins.

Moreover, as Lehnert states, amino resins have an acid hardener, and acid conditions are contradictory to the Andersson teaching.

Moreover, the claimed invention on appeal requires that the amino resin component is selected from the group consisting of melamine-formaldehyde (MF) and melamine-urea-formaldehyde (MUF). Lehnert merely discloses that both conventional phenol and amino resins are generally used to bond wood in the manufacture of plywood. Andersson teaches that when the hardener and resin are applied in separate strands, it is critical for the unreacted resin component to have limited water dilutability to avoid the problem of bleeding (See Andersson, Abstract and page 1, line 29 – page 2, line 11). In contrast, conventional MF and MUF resins are prepared using water and such (unreacted) resins are readily dilutable with water. Accordingly, Andersson teaches away from using conventional MF and MUF resins as in the claimed invention and as in Lehnert. Even more, the use of conventional MF and MUF resins that are readily dilutable in water would destroy the intended purpose of the teachings in the Andersson reference, which would refute a motivation to combine to establish obviousness.

The Federal Circuit and its predecessor have long held that if a proposal for modifying the prior art in an effort to attain the claimed invention causes the art to become inoperable or destroys its intended function, then the requisite motivation to make the modification would not have existed. See, *In re Fritch*, 23 U.S.P.Q. 2d 1780, 1783 n. 12 (Fed. Cir. 1992); *In re Ratti*, 123 U.S.P.Q. 349, 352 (C.C.P.A. 1959).

Here, the Examiner's proposed modification of Andersson according to the teachings of Lehnert clearly destroys the reference's intended function.

In addition, even if such modification were possible, the Examiner provides no motivation for modifying Andersson in view of Lehnert. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. *In re Napier*, 34 U.S.P.Q. 2d 1782, 1784 (Fed. Cir. 1996); *KSR International Co. v. Teleflex Inc.*, 550 U.S. ____ (2007), 2007 WL 1237837 at 12, (First, there must be a reason to combine and/or modify the teachings of the cited prior art references). Thus even if substituting an amino resin in Andersson did not destroy the reference's intended function, the Examiner's only motivation for the proposed substitution is solely by relying on the erroneous notion of "equivalence" of amino and phenolic resins is insufficient to establish obviousness.

However, even if there is any equivalency in Lehnert, it is that the described method of applying a hardener to the edges of a laminate can be used with conjunction with various "conventional" resin systems. However, this "equivalency" holds only in conjunction with other necessary process conditions that are completely contradictory to both Andersson and appellants' claimed invention. For example, Andersson teaches that pre-curing is undesirable because it necessitates frequent cleaning of the application apparatus, and therefore, according to the Examiner, each component is added on its own. Yet Lehnert requires mixing of resin and hardener in the applied adhesive system (Page 4, lines 5-21).

Finally, the claimed methods provide unexpected results in terms of an improvement of lower delamination as demonstrated in Example 1 of appellants' specification when the amount of filler is below 20% in the adhesive. Even assuming, *arguendo*, that the combination of Andersson and Lehnert did establish a *prima facie* case of obviousness, such obviousness is rebutted by the showing of unexpected results as in Example 1 of the specification not suggested by either Andersson or Lehnert.

Therefore, for at least the preceding reasons, it is respectfully submitted that the teachings of Andersson in view of Lehnert would not teach or suggest to one of ordinary skill in the art to modify the adhesive system using a phenol resin and a pH above 7 as in Andersson with an amino resin as in Lehnert. Thus, it is respectfully submitted that the pending claims are not rendered obvious by Andersson in view of Lehnert, and that the rejections of the claims based on Andersson in view of Lehnert are improper.

B. Rejection of claims 46, 83, 88, 96, and 97 under 35 U.S.C. §103

Claims 46, 83, 88, 96, and 97 stand rejected under 35 U.S.C. § 103 (a) as allegedly being unpatentable over Andersson in view of Lehnert, and further in view of Perciwall. Appellants submit that Perciwall is cited for teaching the equivalency of formic acid with various other acids. However, the above noted defects in the combination of Andersson and Lehnert are not overcome by the addition of Perciwall. Hence even if it were established that formic acid is "equivalent" to other acids within the context of the claimed invention, the Examiner has still failed to establish a *prima facie* case of obviousness of claims 46, 83 and 88. Thus, for the same reasons as above, it is respectfully submitted that the pending claims are not rendered obvious by Andersson and Lehnert and further in view of Perciwall, and that the rejections of the claims based on Andersson and Lehnert and further in view of Perciwall are improper.

C. Rejection of claims 40 and 77 under 35 U.S.C. §103

Claims 40 and 77 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Andersson and Lehnert, and further in view of Menger. Appellants submit that claims 40 and 77 have been cancelled and that this rejection is moot. Accordingly, the rejections of the claims based on Andersson and Lehnert and further in view of Menger should be withdrawn.

D. Rejection of claims 60-64 and 66-69 under 35 U.S.C. §103

Claims 60-64 and 66-69 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Andersson in view of Lehnert and Toshio et al. Toshio et al is cited for teaching the application of adhesive components in strands. Again, however, its combination with Andersson and Lehnert does not address the above noted defects inherent in combining these two references. Furthermore, the Examiner has failed to explain the inconsistency of Toshio's separate strand application of components with Lehnert's required mixing of components. Hence claims 60-64 and 66-69 are patentable over this combination of references. Thus, for the same reasons as above, it is respectfully submitted that the pending claims are not rendered obvious by Andersson in view of Lehnert and Toshio et al., and that the rejections of the claims based on Andersson in view of Lehnert and Toshio et al. are improper.

E. Rejection of claim 65 under 35 U.S.C. §103

Claim 65 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Andersson in view of Lehnert and Toshio et al., and further in view of Perciwall. The above noted defects in the combination of Andersson and Lehnert are not overcome by the addition of Perciwall and Toshio. Moreover, Toshio's separate application of strands is inconsistent with Lehnert's teaching of mixing, as noted above. Hence claim 65 is not rendered obvious by the combined teaching of these references. Thus, for the same reasons as above, it is respectfully submitted that the pending claims are not rendered obvious by Andersson in view of Lehnert and Toshio et al. and further in view of Perciwall, and that the rejections of the claims based on Andersson in view of Lehnert and Toshio et al. and further in view of Perciwall are improper.

F. Rejection of claim 94 under 35 U.S.C. §103

Claim 94 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Andersson in view of Lehnert and Perciwall. Despite the addition of Perciwall, the above noted defects in the combination of Andersson and Lehnert are not overcome by the addition of Perciwall. Hence claim 94 is not rendered obvious by the combined teaching. Thus, for the same reasons as above, it is respectfully submitted that the pending claims are not rendered obvious by Andersson in view of Lehnert and Perciwall, and that the rejections of the claims based on Andersson in view of Lehnert and Perciwall are improper.

G. Rejection of Claims 70 and 76 on the Grounds of Non Statutory Obviousness Type Double Patenting

Claims 70 and 76 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 9, and 18 of U.S. Patent No. 6,734,275, to Pirhonen et al. in view of Andersson. For the same reasons as the obviousness rejection over Andersson in view of Lehnert is improper this rejection for non-statutory obviousness type double patenting is improper for failing to provide a showing of *prima facie* obviousness.

U.S. Patent No. 6,734,275 issued to Pirhonen *et al* and is directed to methods of gluing wood and include applying an amino resin and a hardener that includes an acid and a phenolic resin. Appellants submit that for the reasons above Andersson does not overcome the differences between the claimed invention and the claims in U.S Patent 6,734,275 as discussed in detail above. Thus, the currently claimed subject-matter is non-obvious to a skilled person for all the reasons discussed above.

Therefore, for at least the preceding reasons, it is respectfully submitted that the obviousness-type double patenting rejections over claims 1, 9, and 18 of U.S. Patent No. 6,734,275 cannot stand and are improper.

H. Rejection of Claim 94 on the Grounds of Non Statutory Obviousness Type Double Patenting

Claim 94 stands rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 9, and 18 of U.S. Patent No. 6,734,275, to

Pirhonen et al. in view of Perciwall and Andersson. For the same reasons as the obviousness rejection over Andersson in view of Lehnert and Perciwall is improper this rejection for non-statutory obviousness type double patenting is improper for failing to provide a showing of *prima facie* obviousness.

U.S. Patent No. 6,734,275 issued to Pirhonen *et al* and is directed to methods of gluing wood and include applying an amino resin and a hardener that includes an acid and a phenolic resin. Appellants submit that for the reasons above Perciwall and Andersson do not overcome the differences between the claimed invention and the claims in U.S Patent 6,734,275 as discussed in detail above. Thus, the currently claimed subject-matter is non-obvious to a skilled person for all the reasons discussed above.

Therefore, for at least the preceding reasons, it is respectfully submitted that the obviousness-type double patenting rejections over claims 1, 9, and 18 of U.S. Patent No. 6,734,275 cannot stand and are improper.

I. Conclusion

Appellants respectfully submit that a *prima facie* case of obviousness cannot be made in view of the Andersson, in view of Lehnert (in further view of Perciwall and/or Toshio *et al.*) references, as cited in the Final Office Action. All obviousness rejections are based in some manner on a combination of Andersson in view of Lehnert. However, the cited reference fail to provide a motivation to combine the teachings therein to the skilled artisan to arrive at the claimed invention. Particularly, where the proposed modification to the teachings of Andersson by those in Lehnert would render the disclosure as in Anderson inoperable for its intended purpose. *See In re Fitch, supra*. Therefore, Appellants respectfully submit that the Final Office Action has not set forth a *prima facie* case for obviousness. Accordingly, the rejections of claims 39, 41-46, 56-76, and 78-98 under 35 U.S.C. §103(a) over Andersson in view of Lehnert alone, or in combination with either one of Perciwall or Toshio *et al.* or both is improper, and should be reversed.

Appellants respectfully submit that a *prima facie* case of obviousness cannot be made in view of US patent 6,734,275 in view of Andersson or Perciwall and Andersson as cited in the Final Office Action with respect to nonstatutory obviousness-type double patenting. The cited reference do not cure the differences between the claimed invention and the claims of the cited US patent. Accordingly, appellants submit that for the same reasons claims 70, 76, and 94 are patentable in view of claims 1, 9, and 18 of U.S. Patent No. 6,734,275 in view of

Andersson or Perciwall and Andersson as discussed with respect to the obviousness rejection. Therefore, Appellants respectfully submit that the Final Office Action has not set forth a *prima facie* case for obviousness of the current claims. Accordingly, the rejection of claims 70, 76, and 94 on the grounds of Non-Statutory Obviousness Type Double Patenting over claims 1, 9, and 18 of US Patent 6,734,275 is improper, and should be reversed.

8. Claims Appendix

A “Claims Appendix” is attached hereto, and appears on the six (6) pages numbered “Claims Appendix 1-6.”

9. Evidence Appendix

No evidence has been submitted pursuant to 37 C.F.R. §§ 1.130, 1.131 or 1.132. No other evidence has been entered by the Examiner or relied upon by Appellant in the appeal. An “Evidence Appendix” is nevertheless attached hereto and appears on the one (1) page numbered “Evidence Appendix 1.”

10. Related Proceedings Appendix

As indicated above in Section 2, there are no other prior or pending appeals, interferences, or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellants or the Assignee, AKZO NOBEL N.V., “which may be related to, directly affect or be directly affected by or have a bearing on the Board’s decision in the pending appeal.” As such, there are no “decisions rendered by a court or the Board in any proceeding identified pursuant to [37 C.F.R. § 41.37(c)(1)(ii)]” to be submitted. A “Related Proceedings Appendix” is nevertheless attached hereto and appears on the one (1) page numbered “Related Proceedings Appendix 1.”

11. Conclusion

For the reasons indicated above, Appellants respectfully submit that the art of record does not disclose or suggest the subject matter as recited in the claims of the above-identified application. Accordingly, it is respectfully submitted that the subject matter as set forth in the claims of the present application is patentable.

In view of all of the foregoing, reversal of all of the rejections set forth in the Final Office Action is therefore respectfully requested.

Respectfully submitted,

Date: June 19, 2009

By: /Willem F. C. de Weerd/
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CLAIMS APPENDIX

39. A method of applying an amino resin gluing system to a substrate of a gluelam or laminated timber, comprising the steps of:

- (a) feeding an amino resin component selected from the group consisting of melamine-formaldehyde and melamine-urea-formaldehyde to at least a first orifice;
- (b) feeding a hardener component to at least a second orifice; and
- (c) discharging said resin and hardener components through said respective first and second orifices in the form of strands onto the substrate, said discharged components remaining physically isolated from each other until at least one of said components contacts said substrate;

wherein the hardener comprises a volatile acid and is either free from filler or includes filler in an amount of less than 20% by weight.

41. A method according to claim 39, wherein the components of the gluing systems are separately applied in the form of strands, and in optional order, onto the substrate.

42. A method according to claim 39, wherein the later applied strands of one component substantially overlap the corresponding previously applied strands of the other component.

43. A method according to claim 39, wherein the hardener component is applied in the form of strands on top of the resin component applied in the form of strands.

44. A method according to claim 39, wherein the later applied strands of one component do not overlap the corresponding previously applied strands of the other component.

45. A method according to claim 39, wherein the later applied strands of one component do not contact the corresponding previously applied strands of the other component.

46. A method according to claim 39, wherein the hardener comprises formic acid in an amount of 10-30% by weight.

56. A method according to claim 39, wherein the hardener is free from filler.

57. A method according to claim 39, wherein the hardener comprises a filler in an amount of less than 15% by weight.
58. A method according to claim 39, wherein the hardener comprises a filler in an amount of less than 10% by weight.
59. A method according to claim 39, wherein the hardener comprises a thickener.
60. A method of separate application of resin and hardener components of an amino resin gluing system onto a substrate of a gluelam or laminated timber, in the form of strands, wherein the hardener comprises a volatile acid and is either free from filler or comprises filler in an amount of less than 20% by weight, and wherein the resin and hardener components are discharged from different hollow members each having a plurality of orifices, the orifices of one said hollow member being either aligned in, or parallel displaced in, a machine direction in relation to the corresponding orifices of the other said hollow member, and wherein the amino resin is selected from the group consisting of melamine-formaldehyde and melamine-urea-formaldehyde.
61. A method according to claim 60, wherein the later applied strands of one component substantially overlap the corresponding previously applied strands of the other component.
62. A method according to claim 60, wherein the hardener component is applied in the form of strands on top of the resin component applied in the form of strands.
63. A method according to claim 60, wherein the later applied strands of one component do not overlap the corresponding previously applied strands of the other component.
64. A method according to claim 60, wherein the later applied strands of one component do not contact the corresponding previously applied strands of the other component.
65. A method according to claim 60, wherein the hardener comprises formic acid in an amount of 10-30% by weight.
66. A method according to claim 60, wherein the hardener is free from filler.

67. A method according to claim 60, wherein the hardener comprises a filler in an amount of less than 15% by weight.
68. A method according to claim 60, wherein the hardener comprises a filler in an amount of less than 10% by weight.
69. A method according to claim 60, wherein the hardener comprises a thickener.
70. A method of separate application of resin and hardener components of an amino resin gluing system onto a substrate of a gluelam or laminated timber, in the form of strands, wherein the hardener comprises a volatile acid and is either free from filler or comprises filler in an amount of less than 20% by weight, wherein the amino resin is selected from the group consisting of melamine-formaldehyde and melamine-urea-formaldehyde, and wherein the strands of resin and the strands of hardener do not overlap.
71. A method according to claim 70, wherein the hardener comprises formic acid in an amount of 10-30% by weight.
72. A method according to claim 70, wherein the hardener is free from filler.
73. A method according to claim 70, wherein the hardener comprises a filler in an amount of less than 15% by weight.
74. A method according to claim 70, wherein the hardener comprises a filler in an amount of less than 10% by weight.
75. A method according to claim 39, wherein the hardener component further comprises a thickener.
76. A method of separate application of resin and hardener components of an amino resin gluing system onto a substrate of a gluelam or laminated timber, wherein the hardener comprises a volatile acid and a thickener, and is either free from filler or comprises filler in an amount of less than 20% by weight, wherein the amino resin is selected from the group

consisting of melamine-formaldehyde and melamine-urea-formaldehyde, and wherein the components of the gluing system are applied in the form of strands in optional order of application.

78. A method according to claim 76, wherein the components of the gluing systems are separately applied in the form of strands, and in optional order, onto the substrate.

79. A method according to claim 76, wherein the later applied strands of one component substantially overlap the corresponding previously applied strands of the other component.

80. A method according to claim 76, wherein the hardener component is applied in the form of strands on top of the resin component applied in the form of strands.

81. A method according to claim 76, wherein the later applied strands of one component do not overlap the corresponding previously applied strands of the other component.

82. A method according to claim 76, wherein the later applied strands of one component do not contact the corresponding previously applied strands of the other component.

83. A method according to claim 76, wherein the hardener comprises formic acid in an amount of 10-30% by weight.

84. A method according to claim 76, wherein the hardener is free from filler.

85. A method according to claim 76, wherein the hardener comprises a filler in an amount of less than 15% by weight.

86. A method according to claim 76, wherein the hardener comprises a filler in an amount of less than 10% by weight.

87. A hardener composition for use in a method of separate application of resin and hardener components of an amino resin gluing system onto a substrate of a gluelam or laminated timber, wherein the hardener is either free from filler or comprises a filler in an amount of less than 20% by weight and a volatile acid, wherein the amino resin is selected

from the group consisting of melamine-formaldehyde and melamine-urea-formaldehyde, wherein the components of the gluing system are applied in the form of strands in optional order of application.

88. A hardener composition according to claim 87, comprising formic acid in an amount of 10-30% by weight.

89. A hardener composition according to claim 87, wherein the volatile acid is selected from the group consisting of formic acid, acetic acid, pyrovic acid and mixtures thereof.

90. A hardener composition according to claim 87, comprising a filler in an amount of less than 15% by weight.

91. A hardener composition according to claim 87, comprising a filler in an amount of less than 10% by weight.

92. A hardener composition according to claim 87, which is free from filler.

93. A hardener composition according to claim 87, comprising a thickener.

94. A method of separate application of resin and hardener components of an amino resin gluing system onto a substrate of a gluelam or laminated timber, in the form of strands, wherein the hardener comprises a volatile acid and a thickener, wherein the amino resin is selected from the group consisting of melamine-formaldehyde and melamine-urea-formaldehyde, wherein the later applied strands of one component substantially overlap the corresponding previously applied strands of the other component, wherein the hardener component is applied on top of the resin component, wherein the volatile component of said hardener comprises formic acid in an amount of 10-30% by weight, and wherein the hardener is free from filler.

95. A method of separate application of resin and hardener components of an amino resin gluing system onto a substrate according to claim 70, wherein the hardener further comprises a thickener, and wherein said filler is present in an amount less than 15% by weight.

96. A method of separate application of resin and hardener components of an amino resin gluing system onto a substrate, wherein the hardener comprises a volatile acid in an amount of 10-30% by weight and a thickener and is either free from filler or includes filler in an amount of less than 20% weight, wherein the resin component is applied directly onto said substrate in the form of strands and the hardener component is applied on top of the resin component in the form of strands, in a manner which protects said substrate from direct contact with said volatile acid at time of application of said hardener component.

97. A method according to claim 96, wherein the ratio of hardener to resin is in the range of 1:3.5 to 1:2.

98. A method of producing a gluelam or laminated timber comprising a plurality of substrate layers glued together with an amino resin gluing system, said method comprising the steps of :

- (a) feeding an amino resin component to at least a first orifice;
- (b) feeding a hardener component, which comprises a volatile acid and is either free from filler or includes filler in an amount of less than 20% by weight, to at least a second orifice;
- (c) forming said gluing system by discharging said resin and hardener components through said respective first and second orifices in the form of strands onto at least a first surface of a first substrate layer, said discharged components remaining physically isolated from each other until at least one of said components contacts said at least first surface;
- (d) forming a joint with a second surface of a second substrate layer, with said gluing system disposed between said first and second substrate layers; and
- (e) producing said gluelam or laminated timer.

Evidence Appendix

NONE

Related Proceedings Appendix

NONE